

REMARKS/ARGUMENTS

The present Amendment is in response to the Office Action having a mailing date of February 9, 2005. Claims 1-17 are pending in the present Application. Applicant has amended claims 1, 6, and 9. Consequently, claims 1-17 remain pending in the present Application.

Applicant has amended claims 1 and 9 to recite that each of the plurality of reference layers having a core portion including a ferromagnetic material. Support for the amendment can be found in Figure 3, item 140 of the present application and the accompanying discussion. Applicant has also amended claim 6 to correct a minor error. Accordingly, Applicant respectfully submits no new matter is added.

In the above-identified Office Action, the Examiner objected to the specification. In particular, the Examiner objected to claim 6 because “element” in line 2 should be elements.

Applicant has amended claim 6 to replace “element” with “elements” in line 2. Consequently, Applicant respectfully submits that the Examiner’s objection to the specification has been addressed.

In the above-identified Office Action, the Examiner rejected claims 1-3, 5-11, and 13-17 under 35 U.S.C. § 102 as being anticipated by U.S. Patent No. 6,649,960 (Cross). The Examiner also rejected claims 1-5, 8-13, and 17 under 35 U.S.C. § 102 as being anticipated by U.S. Patent No. 6,538,920 (Sharma).

In the above-identified Office Action, the Examiner rejected claims 1-3, 5-11, and 13-17 under 35 U.S.C. § 102 as being anticipated by Cross. In so doing, the Examiner cited layer 14 of Cross as corresponding to the recited reference layer.

Applicant respectfully traverses the Examiner's rejection. Independent claims 1 and 9 recite a magnetic memory and method, respectively, that includes a plurality of reference layers coupled with a portion of the magnetic element. A portion of each of the plurality of reference layers function as at least a portion of a pinned layer for each of the corresponding portion of the plurality of magnetic elements. Claims 1 and 9 further recite that a portion of the reference layer also functions as a write line for the corresponding portion of the plurality of magnetic elements. Claims 1 and 9 also recite that each of the plurality of reference layers having a core portion including a ferromagnetic material.

In contrast, Cross fails to teach or suggest a magnetic memory or method in which a reference layer has portions that functions as a pinned layer and a write line. Instead, Cross describes a system which includes the ferromagnetic reference layer as well as electrodes. Cross, Fig. 1 items 14 (reference layer) and items 12 and 20 (electrodes). Moreover, Cross expressly states that it is the electrodes, not the reference layer, that function as write lines. Cross, col. 1, lines 33-37. Thus, although the reference layer 14 functions as a pinned layer, it is not a write line. Similarly, although the electrodes 12 and 20 may function as write lines, Applicant can find no indication in Cross that the write lines function as a pinned layer. Furthermore, Applicant can find no indication that the electrodes/write lines (as opposed to the pinned layer) are ferromagnetic. Applicant can likewise find no indication in cross that the electrodes/write lines have a core portion including a ferromagnetic material. Consequently, Cross fails to teach or suggest the recited reference layer which functions as both the pinned layer and the write line. Accordingly, claims 1 and 9 are allowable over Cross.

Claims 2-3 and 5-8 depend upon independent claim 1. Claims 10-11 and 13-17 depend upon claim 9. Consequently, the arguments herein apply with full force to claims 2-3, 5-8, 10-11

and 13-17. Accordingly, Applicant respectfully submits that claims 2-3, 5-8, 10-11 and 13-17 are allowable over Cross.

The Examiner also rejected claims 1-5, 8-13, and 17 under 35 U.S.C. § 102 as being anticipated by Sharma.

Applicant respectfully traverses the Examiner's rejection. As discussed above, claims 1 and 9 recite a magnetic memory and method, respectively, that a portion of each of the plurality of reference layers function as at least a portion of a pinned layer for each of the corresponding portion of the plurality of magnetic elements. Claims 1 and 9 further recite that a portion of the reference layer also functions as a write line for the corresponding portion of the plurality of magnetic elements. Claims 1 and 9 also recite that each of the plurality of reference layers having a core portion including a ferromagnetic material.

Sharma describes a reference layer which includes a core and a ferromagnetic cladding. Sharma, col. 9, lines 38-41. See also, for example, Sharma, Fig. 5 item 17 (reference layer), item 19 (a core region that functions as a "read line"), and item 21 (ferromagnetic cladding); Sharma, Fig. 11, item 17 (reference layer), item 19 (core that functions as a write line), and item 21 (ferromagnetic cladding). Sharma teaches that the ferromagnetic cladding 21 may bias (Fig. 5) or function as (Fig. 11) the pinned layer. However, despite specifying the nature of the cladding 21, Applicant can find no mention in Sharma of the core region 19 including any ferromagnetic material. Consequently, Sharma fails to teach or suggest a reference layer in which the core includes ferromagnetic material and portions of which can function as part of the pinned layer and a write line. Accordingly, Applicant respectfully submits that claims 1 and 9 are allowable over Sharma.

Claims 2-5 and 8 depend upon claim 1. Claims 10-13 and 17 depend upon independent claim 9. Consequently, the arguments herein apply with full force to claims 2-5, 8, 10-13, and 17. Accordingly, Applicant respectfully submits that claims 2-5, 8, 10-13, and 17 are allowable over Sharma.


Accordingly, for the above-identified reasons, Applicant respectfully submits that claims 1-17 are allowable over the cited references.

Applicant's attorney believes that this application is in condition for allowance. Should any unresolved issues remain, Examiner is invited to call Applicant's attorney at the telephone number indicated below.

Respectfully submitted,

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Date


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